# Defending Our Shores: Ballast Water Treatment Technologies

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The transfer of ballast water from one region of the world is suggested as a major vector for the introduction of non-indigenous aquatic organisms. Presently, the only treatment that is routinely performed is mid-ocean ballast water exchange where ballast is replaced with oceanic water. The effectiveness of ballast water exchange is questionable and recent regional faunal surveys and sampling in ship's ballast underscore the continuing threat of new introductions of invasive species to the Puget Sound region. Most regulators and environmental advocates consider ballast water exchange a stopgap measure. The International Maritime Organization (IMO) and its member states are considering a Convention (agreement) to phase out and require ballast water treatment. In 2004, the IMO suggested discharge standards. A variety of proposed treatment technologies are being examined around the world at different laboratory scales and on board ships. Some treatments include: ultraviolet light, filtration, ozone, hypochlorite, chlorine dioxide, a biocide called SeaKleen, deoxygenation, and heat. Some investigators have suggested a combination of treatments. The University of Washington is examining several potential treatment technologies. Presently, no single technology has moved to the forefront, which is reflective of the difficulty of the challenge, the infancy of technology research and development, and the relatively small amount of research funding available.